



NTSB National Transportation Safety Board

Office of Aviation Safety

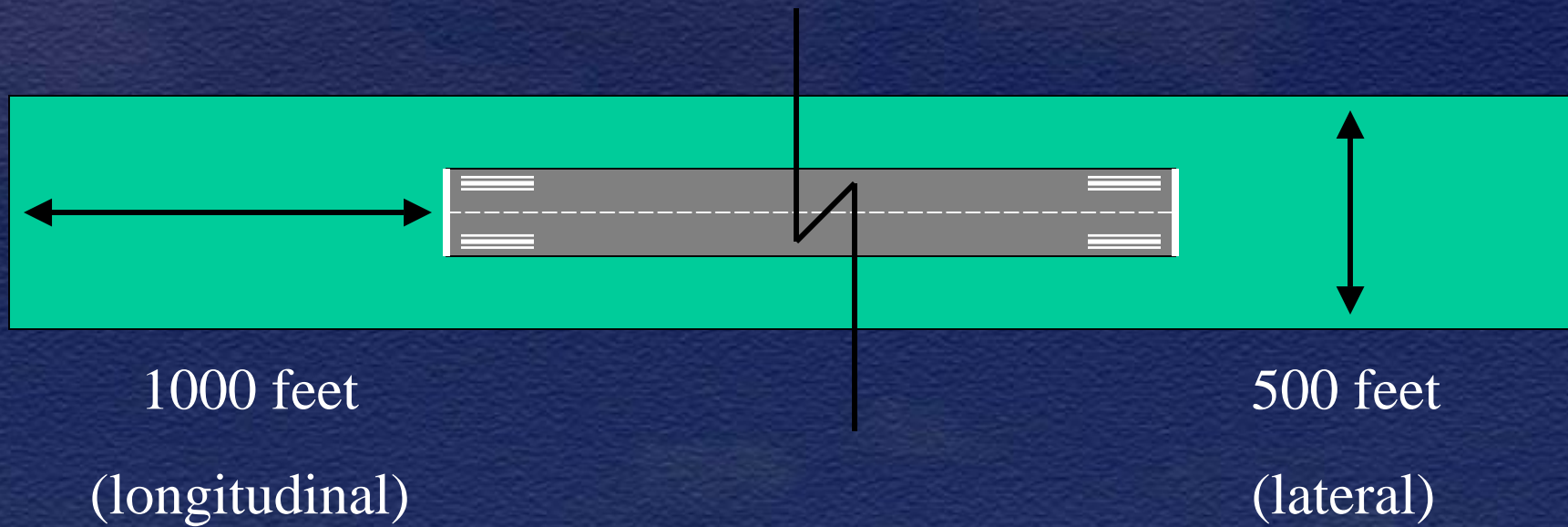
Runway Safety Areas

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Runway Safety Areas

- Buffer zone 1000 feet beyond runway ends, and 250 feet on each side of runway centerline





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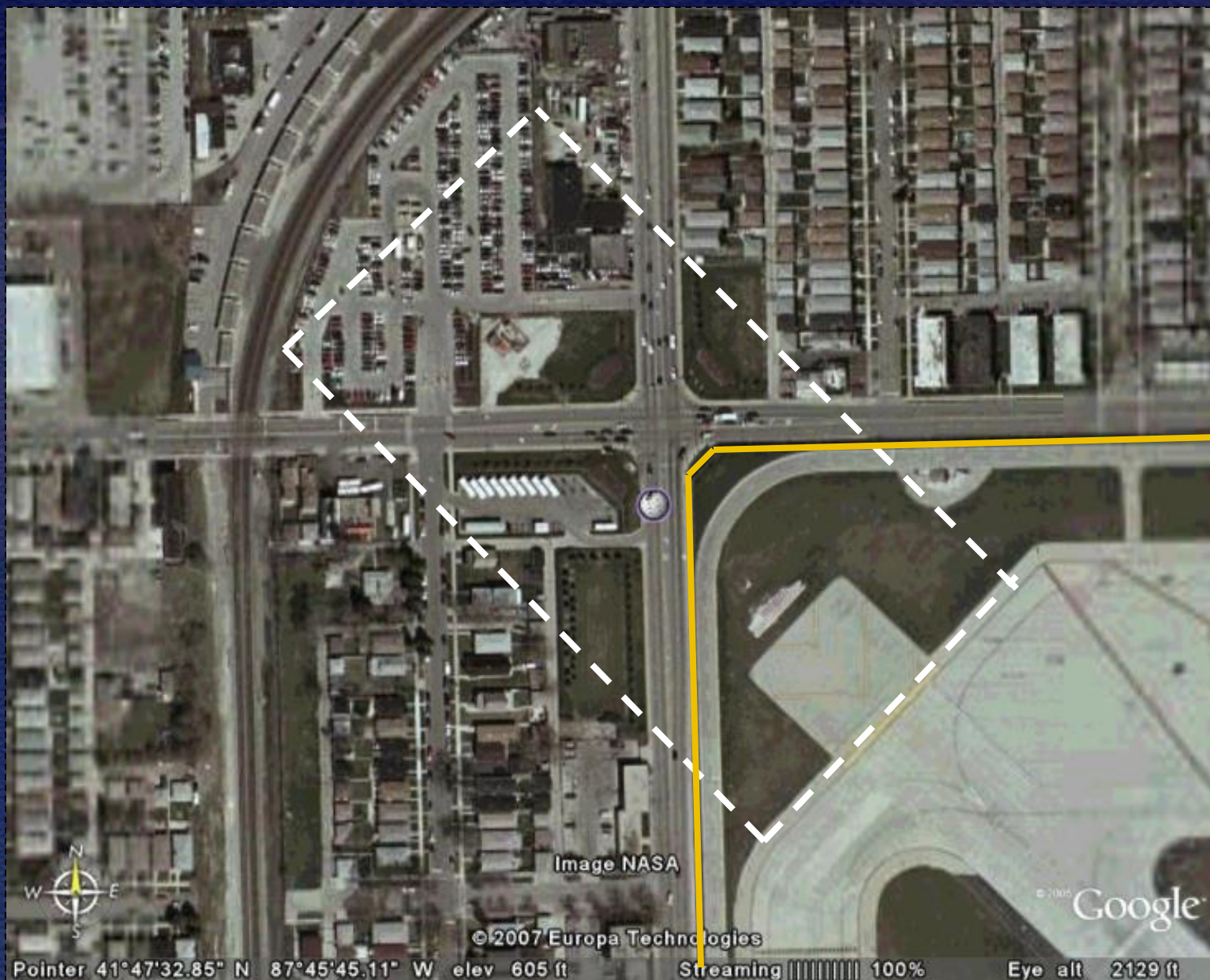


Image NASA

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Pointer 41°47'32.85" N 87°45'45.11" W elev 605 ft

Streaming ||||| 100%

Eye alt 2129 ft

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Runway Safety Areas

- Options for improving RSAs:
 - Acquisition of land (to standards)
 - Relocate or shift runway
 - Reduction in runway length
 - Declared distances
 - Engineered Materials Arresting System (EMAS)

Runway Safety Areas - EMAS

- Engineered Materials Arresting System
 - Crushable concrete blocks
 - Attenuates energy as the airplane crushes the blocks
 - Tunable for “design” airplane and available space
 - Standard EMAS – 70 knot exit speed
 - Non-standard EMAS – 40 knot exit speed

Runway Safety Areas - EMAS



RSAs - Chronology of significant events

1988	<ul style="list-style-type: none">- FAA Regulatory Change<ul style="list-style-type: none">- New construction or significant expansion – RSA must meet standards- Existing RSAs accepted “as-is”
1998	<ul style="list-style-type: none">- MDW contacts ESCO - EMAS potential at MDW
1999	<ul style="list-style-type: none">- FAA Order - Runway Safety Area Program
2000	<ul style="list-style-type: none">- FAA RSA Determination for MDW: “Not practicable to achieve standards.”
2004	<ul style="list-style-type: none">- March: FAA Order - Financial Feasibility and EMAS Equivalence- April: ESCO provides MDW with updated EMAS cost and capability estimates- May: MDW practicability study completed

RSAs - Chronology of significant events

2005	<ul style="list-style-type: none">- March: Meeting between FAA and MDW- July: LGA installs improved EMAS with 35' setback- September: FAA AC – Introduced Non-Standard EMAS- December: SWA 1248 accident occurs
2006	<ul style="list-style-type: none">- January: MDW contacts EMAS manufacturer for estimates- April: MDW request to FAA for EMAS funds- Fall: First of four EMAS installations begin
2007	<ul style="list-style-type: none">- Fall: Estimated project completion

**13C EMAS
completed
9/2007**

**22L EMAS
scheduled
completion
10/2007**

**04R EMAS
scheduled
completion
Fall 2007**

**31C EMAS
scheduled
completion
Fall 2007**

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Runway Safety Areas

- Non-standard EMAS would have stopped the accident airplane
- Conclusion: Absence of EMAS contributed to the severity of the accident



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